

**SCOPE OF WORK
BOUNDARY, TOPOGRAPHIC & UTILITY LOCATION SURVEY
FOR
THE U.S. EMBASSY
CHIEF OF MISSION RESIDENCE (CMR)**

Wellington, New Zealand

March 31, 2011

Conduct an “urban” class survey according to the “2005 Minimum Standard Detail Requirements for ALTA/ASCM Land Title Surveys” as adopted by the American Land Title Association and the American Congress on Surveying and Mapping including Table A Optional Survey Responsibilities and Specifications items 1-15 for the following property, Attachment A.

Property:

99 LUDLAM CRESCENT

LOWER HUTT

WELLINGTON, NEW ZEALAND

Approximate land size: 1 ACRES 2 ROODS .79 PERCHES

A. The minimum requirements for the surveys shall include the following:

- A.1 An accurate WGS84 boundary, detailed topographical, and utilities location survey for the site. The survey shall be transmitted in English by means of finished drawings in metric measure prepared by a locally licensed and authorized civil engineer or land surveyor.
- A.2 Accurately describe existing permanent boundary markers, or, if none are found, permanent monuments or markers should be set at all boundary corners, angle points, and curve points.
- A.3 A survey report signed and submitted by the locally licensed civil engineer or surveyor.

B Boundary Field Criteria

- B.1 Fieldwork shall be of such accuracy that the unadjusted mathematical closure of the field traverse line is not less than one unit in fifteen thousand (1:15,000). Such minimum accuracy may be attained by measuring all angles to the nearest 30 seconds of arc or equivalent and by carefully measuring all distances horizontally to the nearest 3 mm (one one-hundredth of a foot).
- B.2 Existing permanent boundary markers shall be accurately described; if none are found, then permanent markers shall be set at all property corners and angle points. The markers shall be set in one of the following methods, listed in order of preference:

- B.2.a Concrete or stone monuments not less than 100-mm square at the top and of such length that the base extends well below the line of maximum frost penetration, but in no case less than 600 mm long. The monument should be set and thoroughly tamped in place, the top flush with the ground and the actual property corner point marked by a metal plug, drill hole, or chiseled cross.
- B.2.b A 25-mm iron pipe or bar at least 750 mm long be driven into the ground with the top flush with the ground and a 150-mm diameter cement collar placed around the top.
- B.2.c A chiseled cross or drill hole in concrete sidewalk, permanent wall or boulder, etc.

C Topography Field Criteria

- C.1 **Topographical Contours:** Differences in elevation shall be shown by contours and spot elevations. The area to be described shall extend at least 3 m onto adjacent properties and completely across adjacent streets.
 - C.1.a The contour interval shall not exceed 250 mm
 - C.1.b In open areas, the cross section grid shall be spaced not more than 15 meters apart, and the elevations shall be measured at each intersection of the grid line. Also, elevations shall be measured at breaks in grades, center line of pavements, tops and inverts of structures, top of curbs, top and bottom of slopes, walls and along flow line of ditches.
- C.2 Two permanent benchmarks shall be set on the property.
 - C.2.a Two benchmarks shall be located on the opposite ends of the property at places to be protected from damage or disturbance during eventual construction activities. Benchmarks shall be set per paragraph B.2.b & B.2.c above.
 - C.2.b Benchmark elevations (altitude) may be referred to height above mean sea level (MSL).
- C.3 All buildings and structures, including septic tanks and soak pits on the property shall be located by measurements from building corners at right angles to property lines.
- C.4 The geographical coordinates of the property in longitude and latitude (Degrees, minutes and seconds). GPS coordinates must be based on the WGS84 datum. The preferred coordinate format is: Degrees, minutes, seconds in the following format: Latitude: xx deg, xx min, xx.xxx sec N/S; Longitude: xxx deg, xx min, xx.xxx sec E/W. i.e. 05 deg, 19 min 22.000 sec N, 004 deg, 01 min, 12.000 sec W.

D Drawings

- D.1 Drawings shall be made on sheets not larger than ANSI E or ISO 216 A0 and not smaller than ANSI D or ISO 216 A1.
- D.2 Boundary survey shall be shown separately from topographic and utility surveys
- D.3 Any convenient metric scale may be used as long as all details are clearly shown. Preferable 1:200
- D.4 A distinctive symbol line shall show the exact property limit of the U. S. Embassy site. All internal lots must be identified with property lines. In the case of walls lie along the property line, the exact location of the property line with relation to the wall shall be shown, using an enlarged detail sketch.
- D.5 All measurements and dimensions shall be in metric units and all notations shall be in English.
- D.6 Finished drawings shall show the following specific boundary data:
(All CADD layering for the boundary data shall be clearly labeled and described)
 - D.6.a A location and description of each boundary corner monument or marker. At least one corner should be tied to a permanent benchmarks outside the property.
 - D.6.b The bearing and length of each property line. Bearing may be shown by azimuths clockwise from north or by compass bearings in the four quadrants, using true north or in line with local grid.
 - D.6.c Distances to be measured to the nearest 3 mm. If measured distances differ from the deed (recorded) shown, then both distances shall be shown and labeled with "Measured" or "Deed."
 - D.6.d All interior angles of the boundary. The total of the interior angles shall be geometrically correct.
 - D.6.e The adjusted final boundary data shall show a mathematical closure of no less accuracy than one unit in fifteen thousand units (1:15,000).
 - D.6.f The total area of property computed to the nearest square meter and the recorded areas as shown in the title documents. The total area of the site shall be shown in the middle of the survey drawing.
 - D.6.g All recorded easements should be shown on the plan and a copy of the easement in English should be provided.
 - D.6.h Building restriction lines, easements, existing and future rights-of-way

and all encroachments of walls, fences shall be shown and described and shall be located by measurements.

- D.6.i Names of all adjacent streets and future adjacent streets with widths between right-of-way lines and names and lot reference numbers of the owners of all adjacent properties.
 - D.6.j Coordinates of all property corners if a local coordinate grid or other survey control system is in use. The coordinates should be set up with "N" for north and "E" for east. "X" and "Y" should not be used for east and north coordinates.
 - D.6.k Boundary data, coordinates and curve data must be set up in a table on the drawing.
- D.7 Finished drawings shall show the following specific topographic data: (All CADD layering for the topographic data shall be clearly labeled and described).
- D.7.a Benchmark locations, elevations, and descriptions as well as a description of the reference datum.
 - D.7.b The location of all buildings and structures on the property, giving type of construction, number of stories, and use of building, such as "one-story frame garage," or "two-story brick residence," etc. The distance from building to the property line shall be shown on drawings.
 - D.7.c Location, types, and sizes of all walls, fences, gates, walks, roads, wells, drainage ditches on the property.
 - D.7.d The first floor and basement elevations of all buildings on the property.
 - D.7.e The location of all trees over 100 mm diameter and major shrub groupings. Provide tree caliper size. Identify all trees and major shrubs by their common (local) and botanical name.
 - D.7.f Provide information on all trees that may require protection based on local regulations. Local regulations may protect certain trees due to age, height, type or religious significance. Provide the vegetative health analysis of the trees that may require protection. Where trees requiring protection exist, a local landscape specialist is required for this part of the scope. Information shall also be provided on any other specific artifact or feature on the property that is protected per local regulations. Specify the local regulations and provide a copy of the regulations. If no regulations apply, then note this in the report.
 - D.7.g Types and dimensions of paving, curbs, sidewalks, ditches etc., and typical cross-sections of all adjacent streets.

D.7.h The tidal range in elevation, the lowest low water elevation, the highest high tide elevation and the 100-year flood elevation. These elevations shall correspond to the datum used for the topographic portion of the survey. Clearly indicate source of tide and flood data.

D.8 Finished drawings shall show the following specific **underground and above ground utilities location data:**

(All CADD layering for the utility location data shall be clearly labeled and described).

D.8.a The location, size, and invert elevation of all sewer lines, showing whether such lines are for rain water, sanitary, or combined, both on the property and in adjacent streets.

D.8.b The location, elevations, sizes, and types of all water, gas, or other service pipes on the property and in adjacent streets.

D.8.c The location of all sewer manholes, septic tanks, wells, cisterns, or other underground structures, on the property and in adjacent streets, giving top elevation, measured depth from top, and material of construction.

D.8.d The location of all fire hydrants, valves, drainage inlets, headwalls, lamp poles, telephone and electric poles, and all overhead or underground cables or wires on the property and in adjacent streets.

D.8.e The following electrical items should be included in the survey:

D.8.e.1 Details of the available power supply.

D.8.e.2 Identify and photograph local substation and interior cabinets, which feed the site.

D.8.e.3 Identify feeder sizes, ampacity rating, and type of cable and distance from substation (length of cable).

D.8.e.4 Number and size of underground conduits from substation to main server of site.

D.8.e.5 Note if feeder conduits are encased in concrete and provide dimensions.

D.9 Finished drawings shall be in English and shall also show the following:

D.9.a A title showing identification of property, such as lot number, block number, name, etc., city, county, province or other political entity, name of surveyor or engineer, date of survey, and drawing number, if any.

D.9.b Small-scale vicinity map showing the general location of the property with relation to major streets and prominent landmarks in the area.

- D.9.c A graphic bar scale and scale in words.
- D.9.d A north arrow, showing true and grid north.
- D.9.e A complete legend showing all symbols and abbreviations used.
- D.9.f A certification, signed and dated by the locally licensed or responsible engineer or surveyor of record, that he has made a transit and tape survey, that all data shown on the drawing are correct, that property corner monuments or markers have been found or set as shown and described on the drawing, and that all local requirements for land surveys have been met.

E. REPORT

The following shall be included in the Report:

- E.1 The engineer/surveyor shall submit in English a signed and dated written report covering each applicable item of paragraph A,B,C and D that can not be clearly shown on the drawings or that requires explanation or clarification. Provide closure calculations for each parcel meeting requirements of “Accuracy Standards for ALTA/ACSM Land Title Surveys.” The report shall be available in Microsoft Word and Adobe PDF.
- E.2 A description of any building or zoning restrictions, height requirement, building set-back requirement, restrictive covenant or ordinance which might affect construction on the property, and construction of boundary walls, fences and other improvements.
- E.3 The report shall also include any available paving plans or maps, including drainage, any utility plan, gas, telephone, electric, steam duct, etc.
- E.4 Reference to historic landmarks, proximity to historic districts and archeological sites or artifacts if applicable.
- E.5 Indicate locations on site of water ponding, soil erosion or unusual site conditions that can restrict or impede land development.
- E.6 Provide any known information on wells on the property or within the area of the site. Information should include depths of wells, yield, quality, etc.
- E.7 Provide site photographs from each corner of the property and sufficient additional views necessary to show the general character and special features of the site. Key maps shall show the various camera locations, direction and fields of view.

F Electronic Deliverables

- F.1 CADD files of all drawings are required for this project. The files should be constructed to allow three separate drawings to be printed out: boundary drawing (per Section D.6), topographic drawing (per Section D.7), and utility location drawing (per Section D.8).
- F.2 All contract deliverables shall be submitted in hard copy and electronically. Electronic submittals shall include both the **source format and Adobe Acrobat .pdf format**. Source files for Survey Drawings shall be AutoCAD 2007. Source format for the Survey report shall be Microsoft Word. Adobe Acrobat .pdf files shall be PDF version 1.4 (Acrobat 5.x) or greater. PDF files shall be constructed with a page size and layout equal to the hardcopy deliverable. Acrobat PDF files shall be combined so as to create a single document for each deliverable. PDF files shall be book-marked to agree with the document table of contents. All electronic deliverables required shall be transferred on CD- ROM.
- F.3 All CADD data delivered in CADD format shall be compatible with AutoCAD release 2007. If other software is used for this project, the contractor must convert the files into AutoCAD .dwg format. Converted AutoCAD files must retain colors and layer information separately. The surveyor shall confer with the USG prior to initiating the survey to arrive at an early understanding of the layering, color properties and standards to be utilized. All points with elevations should be placed at the correct elevation. Any break lines (curbs, buildings, ditches, etc.) should be shown correctly with 3 dimensions in a three dimensional file. All files shall be purged of unused blocks, dimension styles, layers, line types, and text styles. Only standard AutoCAD .shx fonts shall be used. All font and plot style files that are used as a part of this work shall be submitted with the source CADD files. File naming conventions will be as follows: File names = WLGHCS## (## - drawing number), and a hard copy of the file names, drawing titles and plot scale will be provided to the USG whenever diskettes are submitted. All CADD files created for this project are and remain the property of the USG. At the completion of the surveyor's services, the surveyor will turn over to the USG copies of all project related CADD files.

G TIME SCHEDULE, COST BREAKDOWN and SURVEY EQUIPMENT

Provide a list of the survey equipment to be used for the survey. Provide a detailed time schedule for the above requirements. Provide the initial date to start and the time frame to complete each item:

1. Commencement of Field Work

2. Completion of Boundary Survey
3. Completion of Topographic and Utility Location Field Survey
4. Completion of AutoCAD and Survey Report
5. Submittal #1 to OBO For Review
6. The surveyor should reserve 2 days time at some point after the survey is submitted to meet with US engineering staff to finalize the boundary survey and survey report as necessary. The surveyor should also include time for responding to comments from the USG. This time shall be included in the survey cost breakdown.
7. Submittal #2 – Final Submittal

Provide a detailed cost breakdown for the above requirements as follows:

1. Boundary Survey (provide field crew rates per hour)
2. Topographic Field Survey
3. Utility Location Field Survey
4. Local landscape specialist per D.7.f if applicable
5. Survey Report
6. AutoCAD

H DELIVERABLES

The following deliverables will be submitted for the following required submittals:

- Submittal 1: 90% Submittal for OBO Review
 - Submittal 2: Final Submittal
1. Complete Survey in CD-ROM and five (5) hard copies with original signatures and professional seals.
 - a. Boundary Survey per D.5 of the scope
 - b. Topographic Survey per D.6 of the scope
 - c. Utility Location Survey data per D.7 of the scope
 2. Survey Report in Microsoft Word, Adobe PDF and two (2) hard copies.
 3. Electronic submittals shall include both the source format and Adobe Acrobat .pdf format.
 4. An 8-1/2" x 11" drawing exhibit showing the boundary of the property with dimensions and a total area (hectares and acres) of the property shown in the middle of the site.

I ATTACHMENTS

Attachment A: 2005 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/ACSM LAND TITLE SURVEYS

Attachment B: Plan of Property to be Purchased by US Embassy, Drawing Number 66-231, Turebridge, Callender, Beach, & Co. Oct 1966.

**2005 MINIMUM STANDARD DETAIL REQUIREMENTS FOR
ALTA/ACSM LAND TITLE SURVEYS
as adopted by
American Land Title Association
and
National Society of Professional Surveyors
(a member organization of the American Congress on Surveying and Mapping)**

It is recognized that members of the American Land Title Association (ALTA) have specific needs, peculiar to title insurance matters, which require particular information for acceptance by title insurance companies when said companies are asked to insure title to land without exception as to the many matters which might be discoverable from survey and inspection and not be evidenced by the public records. In the general interest of the public, the surveying profession, title insurers and abstracters, ALTA and the National Society of Professional Surveyors, Inc. (NSPS) jointly promulgate and set forth such details and criteria for standards. It is recognized and understood that local and state standards or standards of care, which surveyors in those respective jurisdictions are bound by, may augment, or even require variations to the standards outlined herein. Where conflicts between the standards outlined herein and any jurisdictional statutes or regulations occur, the more restrictive requirement shall apply. It is also recognized that title insurance companies are entitled to rely on the survey furnished to them to be of an appropriate professional quality, both as to completeness and as to accuracy. It is equally recognized that for the performance of a survey, the surveyor will be provided with appropriate data which can be relied upon in the preparation of the survey.

For a survey of real property and the plat or map of the survey to be acceptable to a title insurance company for purposes of insuring title to said real property free and clear of survey matters (except those matters disclosed by the survey and indicated on the plat or map), certain specific and pertinent information shall be presented for the distinct and clear understanding between the client (insured), the title insurance company (insurer), and the surveyor (the person professionally responsible for the survey). These requirements are:

1. The client shall request the survey or arrange for the survey to be requested and shall provide a written authorization to proceed with the survey from the person responsible for paying for the survey. Unless specifically authorized in writing by the insurer, the insurer shall not be responsible for any costs associated with the preparation of the survey. The request shall specify that an "**ALTA/ACSM LAND TITLE SURVEY**" is required and shall designate which of the optional items listed in Table A are to be incorporated. The request shall set forth the record description of the property to be surveyed or, in the case of an original survey, the record description of the parent parcel that contains the property to be surveyed. Complete copies of the record description of the property (or, in the case of an original survey, the parent parcel), any record easements benefiting the property; the record easements or servitudes and covenants burdening the property ("Record Documents"); documents of record referred to in the Record Documents; and any other documents containing desired appropriate information affecting the property being surveyed and to which the survey shall make reference shall be provided to the surveyor for notation on the plat or map of survey.

2. The plat or map of such survey shall bear the name, address, telephone number, and signature of the professional land surveyor who performed the survey, his or her official seal and registration number, the date the survey was completed, the dates of all of the surveyor's revisions and the caption "**ALTA/ACSM Land Title Survey**" with the certification set forth in paragraph 8.

3. An "**ALTA/ACSM LAND TITLE SURVEY**" shall be in accordance with the then-current "Accuracy Standards for Land Title Surveys" ("Accuracy Standards") as adopted, from time to time by the National Society of Professional Surveyors and the American Land Title Association and incorporated herein by reference.

4. On the plat or map of an "**ALTA/ACSM LAND TITLE SURVEY**," the survey boundary shall be drawn to a convenient scale, with that scale clearly indicated. A graphic scale, shown in feet or meters or both, shall be included. A north arrow shall be shown and when practicable, the plat or map of survey shall be oriented so that north is at the top of the drawing. Symbols or abbreviations used shall be identified on the face of the plat or map by use of a legend or other means. If necessary for clarity, supplementary or exaggerated diagrams shall be presented accurately on the plat or map. The plat or map shall be a minimum size of 8½ by 11 inches.

5. The survey shall be performed on the ground and the plat or map of an "**ALTA/ACSM LAND TITLE SURVEY**" shall contain, in addition to the required items already specified above, the following applicable information:

(a) All data necessary to indicate the mathematical dimensions and relationships of the boundary represented, with angles given directly or by bearings, and with the length and radius of each curve, together with elements necessary to mathematically define each curve. The point of beginning of the surveyor's description shall be shown as well as the remote point of beginning if different. A bearing base shall refer to some well-fixed line, so

that the bearings may be easily re-established. The North arrow shall be referenced to its bearing base and should that bearing base differ from record title, that difference shall be noted.

- (b) When record bearings or angles or distances differ from measured bearings, angles or distances, both the record and measured bearings, angles, and distances shall be clearly indicated. If the record description fails to form a mathematically closed figure, the surveyor shall so indicate.
- (c) Measured and record distances from corners of parcels surveyed to the nearest right-of-way lines of streets in urban or suburban areas, together with recovered lot corners and evidence of lot corners, shall be noted. For streets and highways abutting the property surveyed, the name, the width and location of pavement relative to the nearest boundary line of the surveyed tract, and the width of existing rights of way, where available from the controlling jurisdiction, shall be shown. Observable evidence of access (or lack thereof) to such abutting streets or highways shall be indicated. Observable evidence of private roads shall be so indicated. Streets abutting the premises, which have been described in Record Documents, but not physically opened, shall be shown and so noted.
- (d) The identifying titles of all recorded plats, filed maps, right of way maps, or similar documents which the survey represents, wholly or in part, shall be shown with their appropriate recording data, filing dates and map numbers, and the lot, block, and section numbers or letters of the surveyed premises. For non-platted adjoining land, names, and recording data identifying adjoining owners as they appear of record shall be shown. For platted adjoining land, the recording data of the subdivision plat shall be shown. The survey shall indicate platted setback or building restriction lines which have been recorded in subdivision plats or which appear in Record Documents which have been delivered to the surveyor. Contiguity, gores, and overlaps along the exterior boundaries of the surveyed premises, where ascertainable from field evidence or Record Documents, or interior to those exterior boundaries, shall be clearly indicated or noted. Where only a part of a recorded lot or parcel is included in the survey, the balance of the lot or parcel shall be indicated.
- (e) All evidence of monuments shall be shown and noted to indicate which were found and which were placed. All evidence of monuments found beyond the surveyed premises on which establishment of the corners of the surveyed premises are dependent, and their application related to the survey shall be indicated.
- (f) The character of any and all evidence of possession shall be stated and the location of such evidence carefully given in relation to both the measured boundary lines and those established by the record. An absence of notation on the survey shall be presumptive of no observable evidence of possession.
- (g) The location of all buildings upon the plot or parcel shall be shown and their locations defined by measurements perpendicular to the nearest perimeter boundaries. The precision of these measurements shall be commensurate with the Relative Positional Accuracy of the survey as specified in the current Accuracy Standards for ALTA/ACSM Land Title Surveys. If there are no buildings erected on the property being surveyed, the plat or map shall bear the statement, "No buildings." Proper street numbers shall be shown where available.
- (h) All easements evidenced by Record Documents which have been delivered to the surveyor shall be shown, both those burdening and those benefiting the property surveyed, indicating recording information. If such an easement cannot be located, a note to this effect shall be included. Observable evidence of easements and/or servitudes of all kinds, such as those created by roads; rights-of-way; water courses; drains; telephone, telegraph, or electric lines; water, sewer, oil or gas pipelines on or across the surveyed property and on adjoining properties if they appear to affect the surveyed property, shall be located and noted. If the surveyor has knowledge of any such easements and/or servitudes, not observable at the time the present survey is made, such lack of observable evidence shall be noted. Surface indications, if any, of underground easements and/or servitudes shall also be shown.
- (i) The character and location of all walls, buildings, fences, and other visible improvements within five feet of each side of the boundary lines shall be noted. Without expressing a legal opinion, physical evidence of all encroaching structural appurtenances and projections, such as fire escapes, bay windows, windows and doors that open out, flue pipes, stoops, eaves, cornices, areaways, steps, trim, etc., by or on adjoining property or on abutting streets, on any easement or over setback lines shown by Record Documents shall be indicated with the extent of such encroachment or projection. If the client wishes to have additional information with regard to appurtenances such as whether or not such appurtenances are independent, division, or party walls and are plumb, the client will assume the responsibility of obtaining such permissions as are necessary for the surveyor to enter upon the properties to make such determinations.
- (j) Driveways, alleys and other ways of access on or crossing the property must be shown. Where there is evidence of use by other than the occupants of the property, the surveyor must so indicate on the plat or map. Where driveways or alleys on adjoining properties encroach, in whole or in part, on the property being surveyed,

the surveyor must so indicate on the plat or map with appropriate measurements.

(k) As accurately as the evidence permits, the location of cemeteries and burial grounds (i) disclosed in the Record Documents provided by client or (ii) observed in the process of performing the field work for the survey, shall be shown.

(l) Ponds, lakes, springs, or rivers bordering on or running through the premises being surveyed shall be shown.

6. As a minimum requirement, the surveyor shall furnish two sets of prints of the plat or map of survey to the title insurance company or the client. If the plat or map of survey consists of more than one sheet, the sheets shall be numbered, the total number of sheets indicated and match lines be shown on each sheet. The prints shall be on durable and dimensionally stable material of a quality standard acceptable to the title insurance company. The record title description of the surveyed tract, or the description provided by the client, and any new description prepared by the surveyor must appear on the face of the plat or map or otherwise accompany the survey. When, in the opinion of the surveyor, the results of the survey differ significantly from the record, or if a fundamental decision related to the boundary resolution is not clearly reflected on the plat or map, the surveyor may explain this information with notes on the face of the plat or map or in accompanying attachments. If the relative positional accuracy of the survey exceeds that allowable, the surveyor shall explain the site conditions that resulted in that outcome with a note on the face of the map or plat.

7. Water boundaries necessarily are subject to change due to erosion or accretion by tidal action or the flow of rivers and streams. A realignment of water bodies may also occur due to many reasons such as deliberate cutting and filling of bordering lands or by avulsion. Recorded surveys of natural water boundaries are not relied upon by title insurers for location of title.

When a property to be surveyed for title insurance purposes contains a natural water boundary, the surveyor shall measure the location of the boundary according to appropriate surveying methods and note on the plat or map the date of the measurement and the caveat that the boundary is subject to change due to natural causes and that it may or may not represent the actual location of the limit of title. When the surveyor is aware of changes in such boundaries, the extent of those changes shall be identified.

8. When the surveyor has met all of the minimum standard detail requirements for an ALTA/ACSM Land Title Survey, the following certification shall be made on the plat:

To (name of client), (name of lender, if known), (name of title insurance company, if known), (name of others as instructed by client):

This is to certify that this map or plat and the survey on which it is based were made in accordance with the "Minimum Standard Detail Requirements for ALTA/ACSM Land Title Surveys," jointly established and adopted by ALTA and NSPS in 2005, and includes Items _____ of Table A thereof. Pursuant to the Accuracy Standards as adopted by ALTA and NSPS and in effect on the date of this certification, undersigned further certifies that in my professional opinion, as a land surveyor registered in the State of _____, the Relative Positional Accuracy of this survey does not exceed that which is specified therein.

Date: _____ (signed)
(seal)
Registration No.

NOTE: If, as otherwise allowed in the Accuracy Standards, the Relative Positional Accuracy exceeds that which is specified therein, the following certification shall be made on the plat:

To (name of client), (name of lender, if known), (name of title insurance company, if known), (name of others as instructed by client):

This is to certify that this map or plat and the survey on which it is based were made in accordance with the "Minimum Standard Detail Requirements for ALTA/ACSM Land Title Surveys," jointly established and adopted by ALTA and NSPS in 2005, and includes Items _____ of Table A thereof. Pursuant to the Accuracy Standards as adopted by ALTA and NSPS and in effect on the date of this certification, undersigned further certifies that in my professional opinion, as a land surveyor registered in the State of _____, the maximum Relative Positional Accuracy is _____ feet.

Date: _____ (signed)
(seal)

Registration No.

The 2005 Minimum Standard Detail Requirements for ALTA/ACSM Land Title Surveys are effective January 1, 2006. As of that date, all previous versions of the Minimum Standard Detail Requirements for ALTA/ACSM Land Title Surveys are superseded by these 2005 standards.

Adopted by the American Land Title Association on October 5, 2005.

Adopted by the Board of Directors, National Society of Professional Surveyors on October 24, 2005.

American Land Title Association, 1828 L St., N.W., Suite 705, Washington, D.C. 20036.

National Society of Professional Surveyors, Inc., 6 Montgomery Village Avenue, Suite 403, Gaithersburg, MD 20879

- *crossmembers or overhangs affecting the surveyed premises; and utility company installations on the surveyed premises.*
12. _____ *Governmental Agency survey-related requirements as specified by the client.*
13. _____ *Names of adjoining owners of platted lands.*
14. _____ *The distance to the nearest intersecting street as designated by the client*
15. _____ *Rectified orthophotography, photogrammetric mapping, laser scanning and other similar products, tools or technologies may be utilized as the basis for the location of certain features (excluding boundaries) where ground measurements are not otherwise necessary to locate those features to an appropriate and acceptable accuracy relative to a nearby boundary. The surveyor shall (a) discuss the ramifications of such methodologies (e.g. the potential accuracy and completeness of the data gathered thereby) with the title company, lender and client prior to the performance of the survey and, (b) place a note on the face of the survey explaining the source, date, relative accuracy and other relevant qualifications of any such data.*
16. _____ *Observable evidence of earth moving work, building construction or building additions within recent months.*
17. _____ *Any changes in street right of way lines either completed or proposed, and available from the controlling jurisdiction. Observable evidence of recent street or sidewalk construction or repairs.*
18. _____ *Observable evidence of site use as a solid waste dump, sump or sanitary landfill.*
19. _____

Accuracy Standards for ALTA/ACSM Land Title Surveys

Introduction

These Accuracy Standards address Relative Positional Accuracies for measurements that control land boundaries on ALTA/ACSM Land Title Surveys.

In order to meet these standards, the surveyor must assure and certify that the Relative Positional Accuracies resulting from the measurements made on the survey do not exceed that which is allowable.

If the size or configuration of the property to be surveyed, or the relief, vegetation or improvements on the property will result in survey measurements for which the allowable Relative Positional Accuracies will be exceeded, the surveyor must alternatively certify as to the Relative Positional Accuracy that was otherwise achieved on the survey.

Definition:

“Relative Positional Accuracy” means the value expressed in feet or meters that represents the uncertainty due to random errors in measurements in the location of any point on a survey relative to any other point on the same survey at the 95 percent confidence level.

Background

The lines and corners on any property survey have uncertainty in location which is the result of (1) availability and condition of reference monuments, (2) occupation or possession lines as they may differ from record lines, (3) clarity or ambiguity of the record descriptions or plats of the surveyed tracts and its adjoiners and (4) Relative Positional Accuracy.

The first three sources of uncertainty must be weighed as evidence in the determination of where, in the professional surveyor’s opinion, the boundary lines and corners should be placed. Relative Positional Accuracy is related to how accurately the surveyor is able to monument or report those positions.

Of these four sources of uncertainty, only Relative Positional Accuracy is controllable, although due to the inherent error in any measurement, it cannot be eliminated. The first three can be estimated based on evidence; Relative Positional Accuracy can be estimated using statistical means.

The surveyor shall, to the extent necessary to achieve the standard contained herein, (1) compensate or correct for systematic errors, including those associated with instrument calibration, (2) select the appropriate equipment and methods, and use trained personnel and (3) use appropriate error propagation and other measurement design theory to select the proper instruments, field procedures, geometric layouts and computational procedures to control random errors.

If radial survey methods, GPS or other acceptable technologies or procedures are used to locate or establish points on the survey, the surveyor shall apply appropriate procedures in order to assure that the allowable Relative Positional Accuracy of such points is not exceeded.

Computation of Relative Positional Accuracy

Relative Positional Accuracy may be tested by:

- (1) comparing the relative location of points in a survey as measured by an independent survey of higher accuracy or
- (2) the results of a minimally constrained, correctly weighted least square adjustment of the survey.

**Allowable Relative Positional Accuracy for Measurements Controlling Land
Boundaries on ALTA/ACSM Land Title Surveys**

0.07 feet (or 20 mm) + 50 ppm
